Developing a Canadian ITS Program

Voice of the Industry Workshop
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Marie-Chantal Ross
Program Leader

Overview

- About NRC
- Why ITS
- Why Canada, Why now
- What: The Current Plan
- International Leadership
  - Countries
  - Cities
  - Academia
  - Industry
- Next Steps

About NRC

The National Research Council (NRC) is the Government of Canada's premier research organization supporting industrial innovation, the advancement of knowledge and technology development, and fulfilling government mandates

- Technical and advisory services
- Licensing opportunities
- Research programs and collaborative research
- IRAP

About the NRC

Our mission

- Working with clients and partners, we provide innovation support, strategic research, scientific and technical services to develop and deploy solutions to meet Canada's current and future industrial and societal needs.

Our values

- *Impact:* We make a positive difference for our stakeholders.
- *Accountability:* We are responsible for our work and our workplace.
- *Leadership:* We value leadership, initiative and the application of best practices in our work.
- *Integrity:* We engage fairly and openly to earn credibility and trust.
- *Collaboration:* We actively collaborate to engage vital knowledge and expertise and to generate better, more efficient solutions.

Why ITS

Transportation is the backbone to the Canadian (global) economy, and ITS is the nervous system of the sector

- ITS will revolutionize the transportation sector in the near and medium future
  - Save lives, time, money, energy and the environment
  - Estimated as a trillion dollar global industry by 2025

ITS addresses major global trends

- *Urbanization and population growth:* Reduce urban sprawl, congestion and pollution
- *Smart and digital cities:* Increase efficiency of transportation
- *Infrastructure renewal:* Create smart, interactive, highly efficient, safe and secure transportation
- *Changing demographics:* Meet rising demand for customized transportation solutions
- *Environmental responsibility:* Reduce footprint through lower emissions vehicles (ITS integrated into vehicle system), and fewer vehicles on the road
- *Multimodal, multi-jurisdictional, interoperable networks:* Allow systems to use real-time information

Why Canada? Why Now?

Why Canada

- Canada's unique transportation landscape
  - Multijurisdictional across vast distances
- Integrated automotive supply chain
- Risks of buy versus make (e.g., data protection)

Why Now

- Trillion dollar global industry by 2025
  - Canada is lagging behind internationally
- Canada has all the building blocks
- ITS World Congress in Montreal

THE WHAT: NATIONAL ITS PROGRAM – CURRENT THINKING

- To develop a national ITS cluster with regional representation
  - International players in 5 years, global leaders in Canadian niche areas within 10 years

POTENTIAL VALUE PROPOSITION IDEAS (TBD)

- Increase exports of technology by x%
- Reduce emission from transportation by y%
- Reduce transportation related accidents by z%
- Increase Canadian publications and international collaborations
- Increase Canadian patented technologies

MANAGEMENT BOARD A MIX OF REPRESENTATION:

- Relevant government (federal, provincial, municipal)
- Academia (NSERC, SHRC plus a couple relevant academics)
- Industry (ITS Canada, IRAP plus some key players)

Building Blocks – International

International leadership

- EU and US
- Netherlands
- UK
- Australia
- South Korea

Canada has no documented activities since 2010

- ITS Strategic Plan from 1999

	AU	CA	EU	NL	KR	UK	US
ITS-Specific Project Funding	✓	✗	✓	✓	✓	✓	✓
RTO ITS Activities	✓	✗	✓	✓	✓	✓	✓
ITS Demonstration Projects	✓	✗	✓	✓	✓	✓	✓
International Government ITS Collaborations	✓	✓	✓	✓	✓	✓	✓
ITS Policies/Implementation Guidelines	✓	✗	✓	✓	✓	✓	✓
ITS Strategic Plans/Roadmaps	✓	✗	✓	✓	✓	✓	✓
National ITS Association (non-Gov't)	✓	✓	✓	✓	✓	✓	✓

BUILDING BLOCKS – INTERNATIONAL

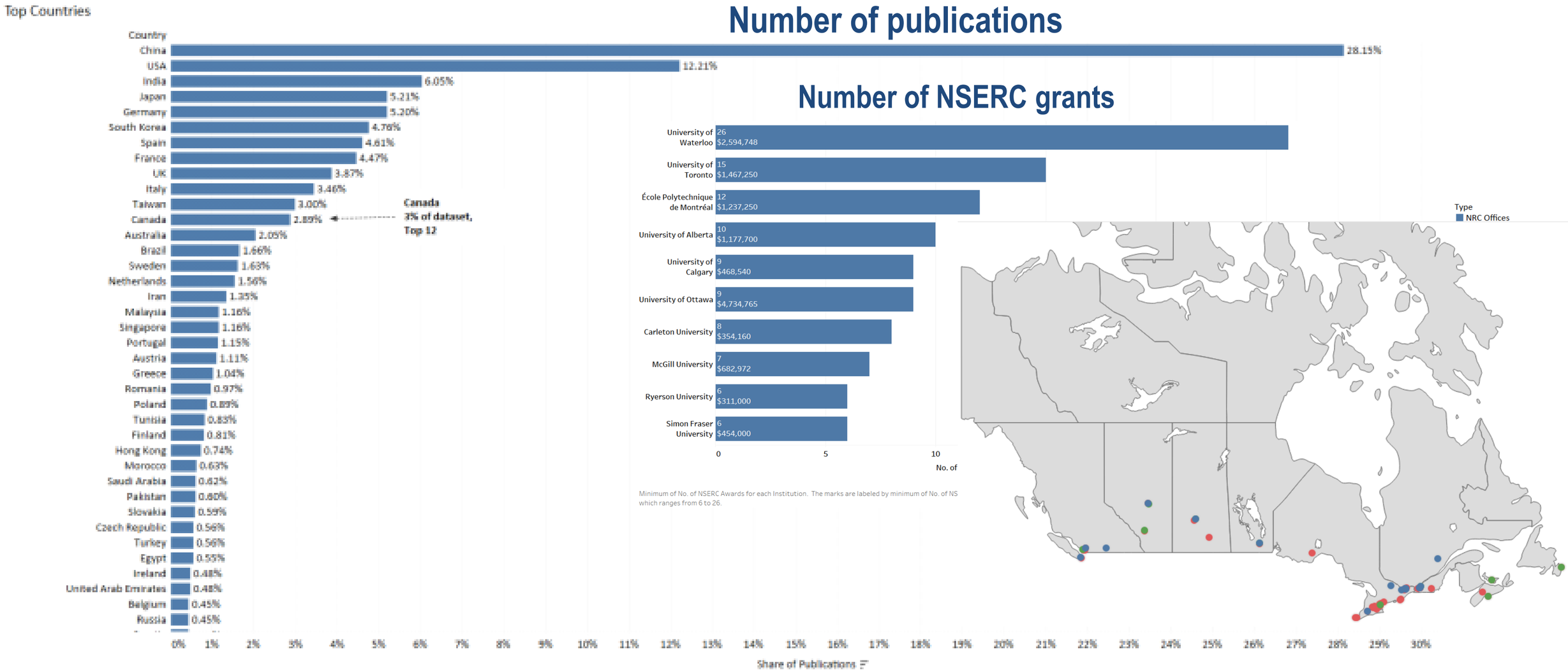
	US	EU	Netherlands	South Korea
Research	• Accelerating Deployment • Automation • Connected Vehicles • Emerging Capabilities • Enterprise Data • Interoperability	• Optimal use of road, traffic and travel data • Continuity of traffic and freight management • Road safety & security • Integration of vehicle to infrastructure • Data security and protection		• Traffic – increased demand; congestion; space; industrialization
Deployment	• Vehicle to infrastructure • Connected Vehicles	• ~40 initiatives across EU • CO-GISTICS • FOSTER-ROAD	• Admittance procedure • Over 80 projects	
Policy	• Final rule on ITS Architecture in 2001 • Connected Vehicle Standards • $100M/year program	• ITS Strategy for ITS enabled vehicles in 2019	• ITS Plan 2013-2017 • Declaration of Amsterdam • 70 M euros to 2018	• National Transport System Efficiency Act (1999) • Support international standardization • Develop technical regulations • Operate National ITS Registry and ITS Architecture website • 2.9 trillion KRW from 2001-2012 to implement ITS

Building Blocks – Canadian Cities

Canada's most progressive ITS cities:

- Vancouver and Edmonton (ACTIVE-AURORA)
- Calgary
- Toronto and surrounding area (including London and Stratford)
- Montreal

BUILDING BLOCKS - ACADEMIA



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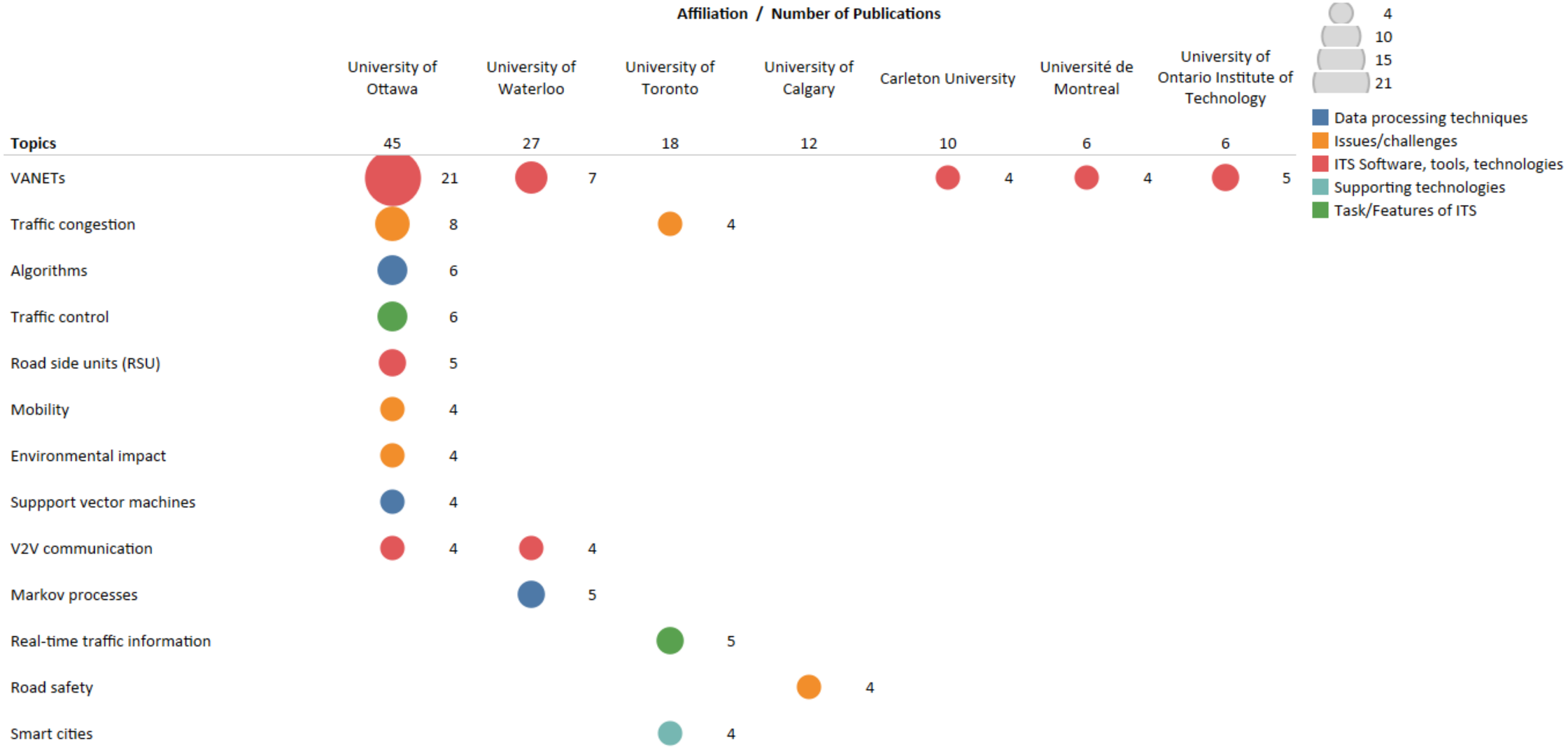
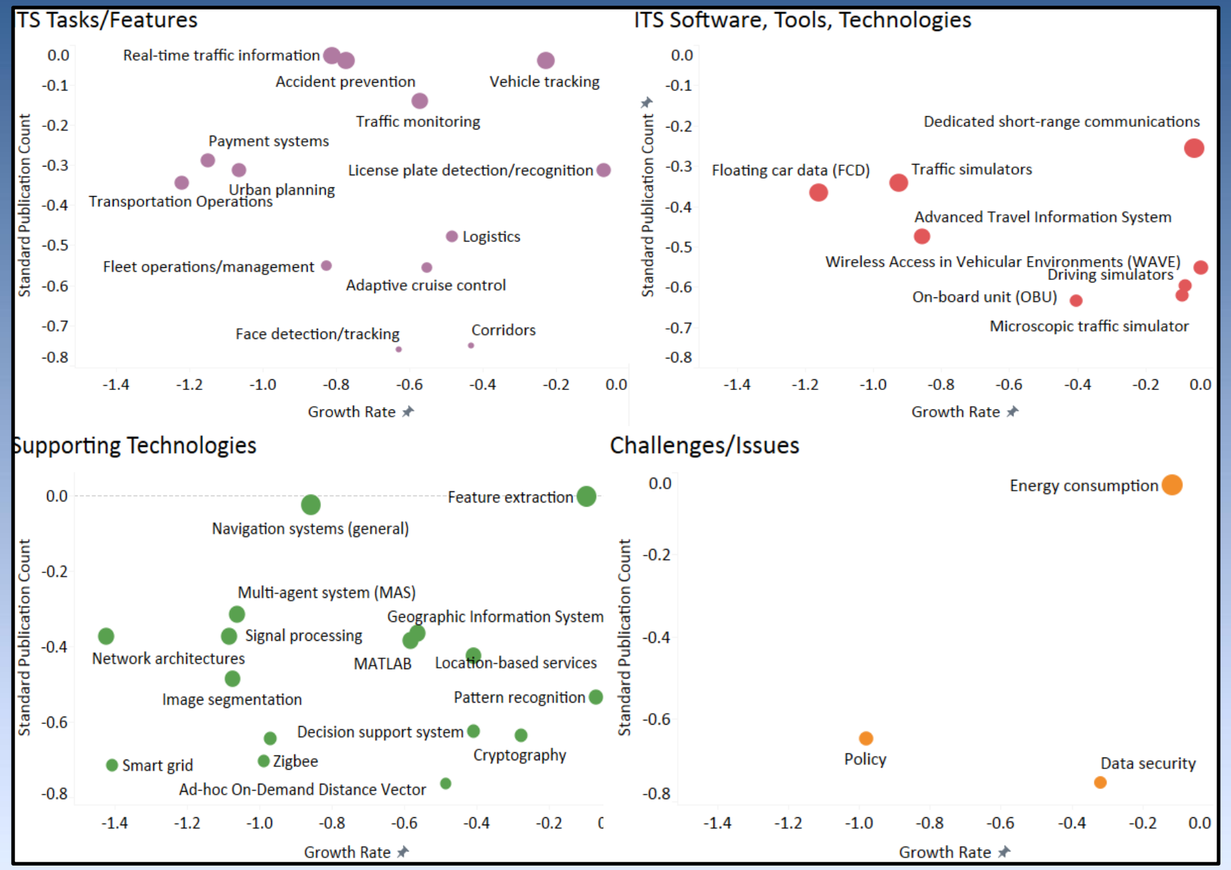


Building Blocks - Academia

Tasks/Features
- Road conditions
- Corridors
- Traffic Control

Supporting Technologies
- GPS/GNSS
- Computer vision
- Smart phones



Software, Tools and Technologies
- VANET
- V2X
- Traffic simulators

Issues/Challenges
- Congestion
- Mobility
- Safety

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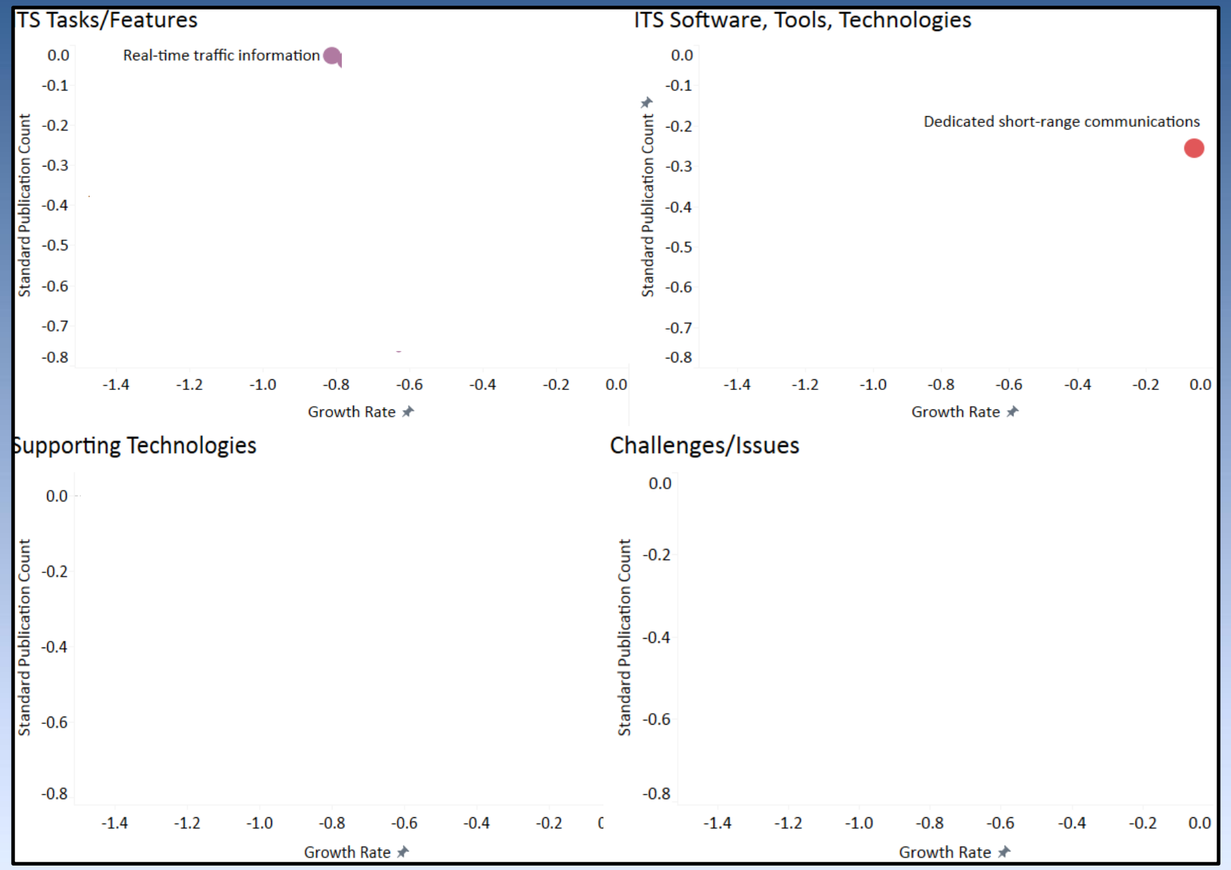

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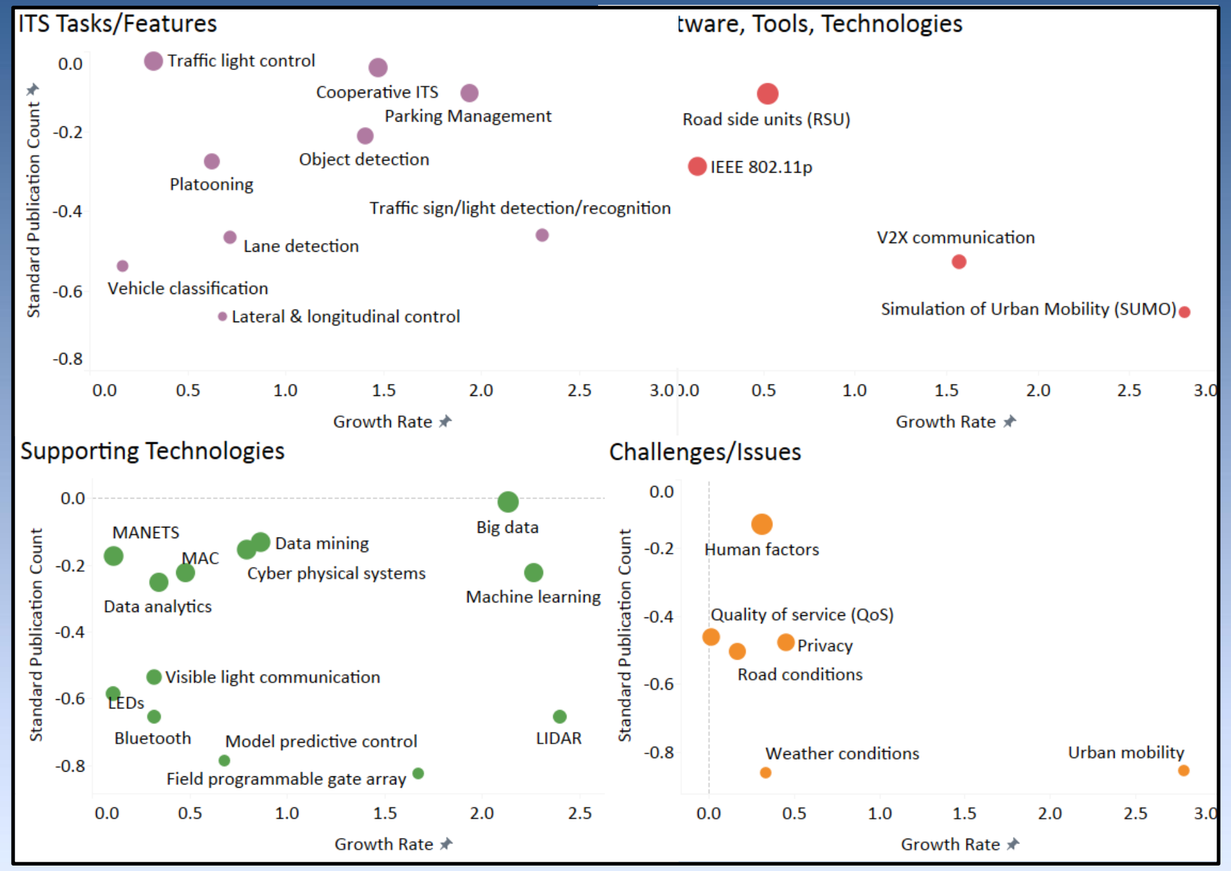

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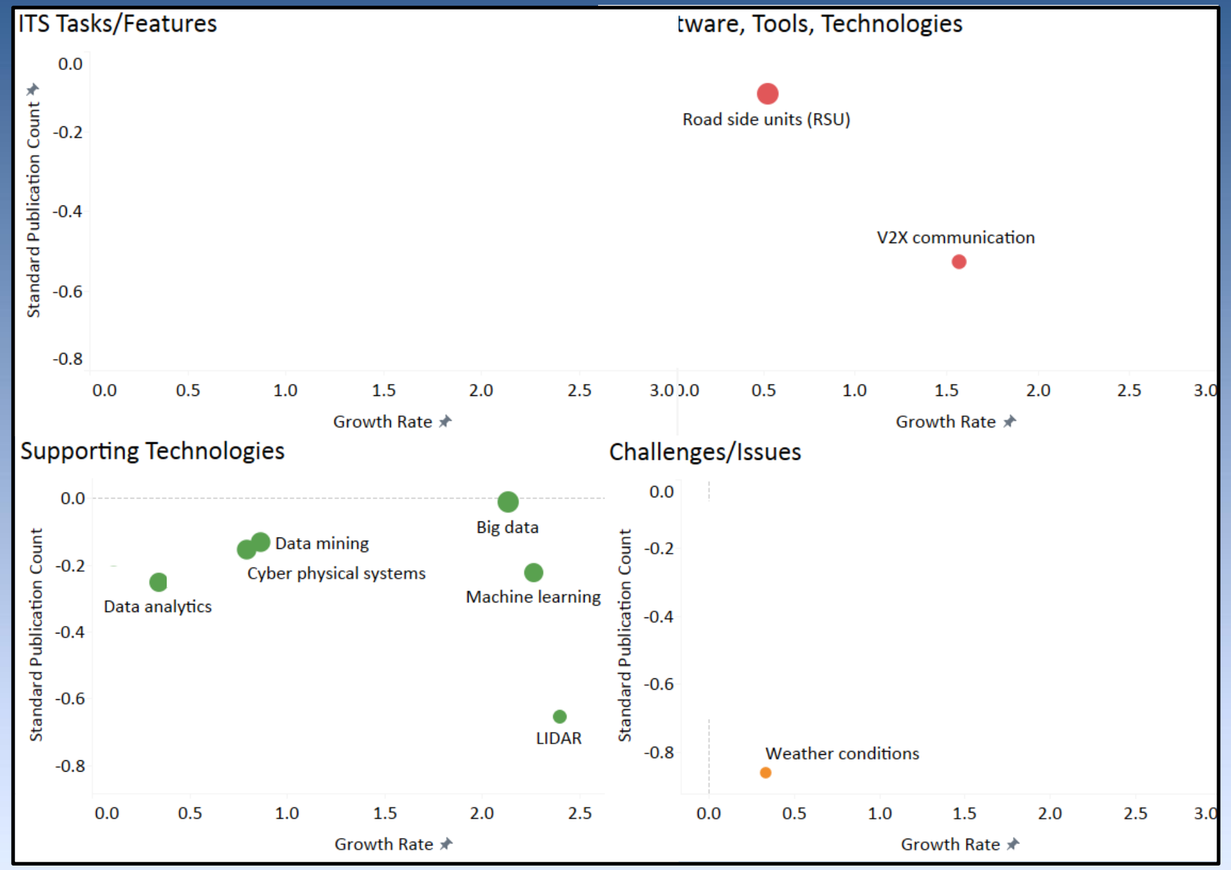

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Building on Canada's Strengths - Industry

ITS is:

- The application of advanced and emerging technologies (computers, sensors, control, communications, and electronic devices) in transportation

ICT Sub-Sectors (2015)	Employees		Companies		Revenue ($ B)
Manufacturing	6.1%	35,676	2.6%		8.94
Software & Computing	62%	362,607	88.6%	33,000	61.5
Communication Services	22.4%	131,006	3.4%		59.10
Wholesale	9.5%	55,561	3.4%		42.70
Total ICT Sector	**100%**	**584,850**	**100%**	**37,400+**	**172.24**

Related Industries	2016 Employees	Companies	2016 Revenue ($ B)
Big Data & Analytics	33,600	n/a	$1.1B
Cybersecurity	n/a	130+	n/a
ITS	TBD	100+	TBD

Next Steps

- Engagement with Provinces and Municipalities
  - BC, AB, ON, QC, FCM
  - Vancouver, Edmonton, GTA, Montreal
- Engagement with Universities
  - Ottawa U
  - Waterloo
  - U of T
  - NSERC
- Market study
  - Budgets
  - Market potential
- Develop Program Proposal
- Workshop with all Stakeholders at ITS World Congress – October 29th – November 2nd.

Concluding Remarks

- Transportation is ubiquitous and necessary for quality of life and national productivity
- ITS is an important global sector
  - With much momentum
- Canada is in an excellent position to become leaders in specific ITS systems
  - National leadership is required
  - Collaboration across government, academia and industry is necessary

Thank you !

Marie-Chantal Ross

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